1: Before capping began, the landfill resembled a grassy field.

2: Bulldozer grooms sand into a gentle slope over the landfill.

3: Workers lay the geomembrane over the groomed sand.

4: Grass is planted by a process called "hydro-seeding."

Lab's oldest landfill receives a 'geo cap'

The capping of Brookhaven National Laboratory's oldest inactive landfill, known as the Former Landfill, has been completed. This is the second landfill to be capped in the past year.

The Former Landfill is located in the southeast portion of the Lab. It was originally operated by the U.S. Army for waste disposal from the beginning of World War II until the Lab was established in 1947. After that time, the Lab continued to use a portion of the landfill for general waste disposal until it was closed in 1966. The Former Landfill received some low-level radioactive wastes between 1953 and 1966.

Capping is a remediation method that seals a landfill from the top so that precipitation cannot filter through the landfill contents and leach contaminants into groundwater.

In the first step of this process, a fabric liner is placed over the surface of the landfill and covered with 12 inches of sand. Gas venting pipes are then placed in an upright position throughout this layer to prevent methane gas buildup under the cap.

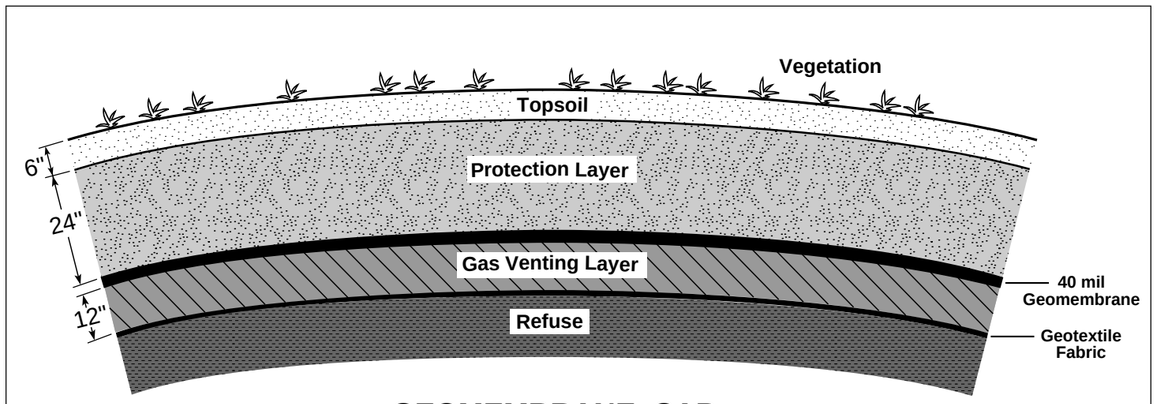
In the second step, a 40 mils thick geomembrane cap, made of poly ethylene, is laid over the first 12-inch layer of sand. This cap prevents rainwater from reaching, and then percolating through, the landfill.

The third step involves the application of a 24-inch layer of soil over the cap to protect it from frost action, root penetration, or physical damage.

Finally, a six-inch layer of topsoil is applied and seeded with grass to prevent soil erosion. The landfill cap is designed so that precipitation will run off into designated drainage areas without ever reaching the cap. To stabilize the side slopes that are created during the capping process, biodegradable erosion blankets are also applied. They hold the soil in place until the grass cover can take root.

To ensure that capping remains effective, cap maintenance, long-term groundwater monitoring, and methane gas monitoring programs have been established.

Plans for a number of recreational uses are underway for the finished site. ■



GEOMEMBRANE CAP

This cross-section illustrates the structure of a landfill cap. Precipitation is kept from reaching the landfill's contents by intermittent layers of soil, sand and impermeable geomembrane and fabric.

5: When work was completed, the landfill once again resembled a grassy field.

***Adapted from the Office of Environmental Restoration newsletter* cleanupdate**